

ABSTRACT OF THE DISCLOSURE

An IIR filter implementation which provides equivalent results to prior art IIR filters, yet operates about twice as fast as the prior art IIR filters, or requires about half the gate count of the prior art IIR filters and reduced semiconductor area as compared to prior art IIR filters for equivalent speed of operation. An implementation of a high order IIR filter in accordance with one embodiment of the present invention involves the parallel structure of the second-order IIR filters, therefore the filter operates twice as fast as the prior art filter. In accordance with a second embodiment of the invention, low order filters of the same order are reused (used on a time-sharing basis), thereby requiring only a single IIR filter for each order utilized on a time sharing basis, thereby further reducing the number of gates and semiconductor area required.